



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,118	06/18/2002	Keiichi Kitagawa	L9289.02148	9064

24257 7590 12/14/2006

STEVENS DAVIS MILLER & MOSHER, LLP
1615 L STREET, NW
SUITE 850
WASHINGTON, DC 20036

EXAMINER

WONG, BLANCHE

ART UNIT	PAPER NUMBER
----------	--------------

2616

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,118

Applicant(s)

KITAGAWA ET AL.

Examiner

Blanche Wong

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 15-17 and 19-24 is/are rejected.
7) ☒ Claim(s) 18 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 15-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 15,17,20-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Takahashi et al. (EP 0 735 731).

With regard to claims 15 and 22-24, Applicant's admitted prior art discloses a converter (**see S/P in Fig. 1; see also Specification p. 2, lines 8-12**) that converts an information signal with a single sequence to information signals with a plurality of sequences subjected to spreading processing; and

a generator (**see IFFT in Fig. 1; see also Specification p. 3, lines 3-11**) that generates a multi-carrier signal by multiplexing the respective information signals with said plurality of sequences subjected to spreading processing on sequence-specific carriers (**N subcarriers in Fig. 1; see also Specification, line 11**).

Art Unit: 2616

However, Applicant's admitted prior art fails to explicitly show a peak power detector that detects peak power of said multi-carrier signal; and a regenerator that regenerates a multi-carrier signal when said peak power exceeds a threshold by multiplexing a signal for suppressing peak power instead of an information signal on at least on specific carrier out of said carriers.

Takahashi discloses

a peak power detector (**peak detectors 37-40 in Fig. 4, col. 15, line 24 and line 48, col. 16, line 13 and line 37**) that detects peak power of said multi-carrier signal (**the device 37 detects an instantaneous peak power [of the signal], col. 15, lines 26-27; similarly for device 38-40**); and

a regenerator means (**polarity control circuits 42-45 and oscillator 48 in Fig. 4 and modulator 7 in Fig. 1, col. 19, lines 47-49**) that regenerates a multi-carrier signal when said peak power exceeds (**higher**) a threshold (**reference power**) by multiplexing a signal (**modulator**) for suppressing peak power (**canceling the peak power being equal to or higher than the given peak power, col. 3, lines 1-4**) instead of an information signal on at least on specific carrier out of said carriers (**in the case where the estimated peak power is equal to or higher than the reference power ... the polarity control circuits change or invert polarities [of the signal] ..., col. 18, lines 44-56**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a peak power detector and a regenerator in Applicant's admitted prior art. The suggestion/motivation for doing so would have been to cancel any signal greater than peak power because the system can handle up to peak power

only. Takahashi, col. 2, lines 14-38 and col. 3, lines 1-4. Therefore, it would have been obvious to combine Takahashi with Applicant's admitted prior art for the benefit of a peak power detector and a regenerator, to obtain the invention as specified in claims 15 and 22-24.

With regard to claim 17, the combination of Applicant's admitted prior art and Takahashi discloses the multi-carrier CDMA communication apparatus according to claim 15. However, the combination fails to explicitly show a regenerator that uses a random signal as the signal for suppressing peak power.

Takahashi further disclose a random signal (**oscillator**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a random signal in Applicant's admitted prior art. The suggestion/motivation for doing so would have been to suppress and modulate. Takahashi, Fig. 4. Therefore, it would have been obvious to combine Takahashi with Applicant's admitted prior art for the benefit of a peak power detector and a regenerator, to obtain the invention as specified in claim 17.

With regard to claims 20 and 21, Applicant's admitted prior art further discloses **(see also analysis for claim 2)**

sequence converting means (**S/P in Fig. 1**) for converting an information signal with a single sequence to information signals with a plurality of sequences; and

spreading means (**12-1 to 12-N in Fig. 1**) for carrying out spreading processing on said respective information signals with a plurality of sequences.

4. **Claims 16 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art and Takahashi as applied to claim 1 above, and further in view of Verma (U.S. Pat No. 6,757,299).

With regard to claim 16, the combination of Applicant's admitted prior art and Takahashi discloses the multi-carrier CDMA communication apparatus according to claim 15.

However, the combination fails to explicitly show a generating means multiplexing the information signal subjected to error correcting coding processing before spreading processing.

In an analogous art, Verma disclose a generating means multiplexing the information signal subjected to error correcting coding processing (**FEC Encoder 200, col. 1, line 32-33; see also Fig. 1 and Fig. 2, col. 4, lines 36-59**) before spreading processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an error correcting coding processing. The suggestion/motivation for doing so would have been to provide for a procedure to choose a subcarrier. Verma, col. 3, line 23-27. Therefore, it would have been obvious to combine an error correcting coding processing with Applicant's admitted prior art and Takahashi, to obtain the invention as specified in claim 16.

With regard to claim 19, the combination of Applicant's admitted prior art and Takahashi discloses the multi-carrier CDMA communication apparatus according to claim 15.

However, the combination fails to explicitly show a clipping means for carrying out clipping processing on a multi-carrier signal whose peak power exceeds a threshold out of the generated or regenerated multi-carrier signals.

In an analogous art, Verma further discloses a clipping means (**clipper 800, col. 1, line 57; see also Fig. 1**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a clipping means. The suggestion/motivation for doing so would have been to provide for a procedure to choose a subcarrier. Verma, col. 3, line 23-27. Therefore, it would have been obvious to combine a clipping means with Applicant's admitted prior art and Takahashi, to obtain the invention as specified in claim 19.

Allowable Subject Matter

5. Claim 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2616

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BW

BW
November 28, 2006



HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600